INFORMATION ITEM

Climate Change in the Sacramento-San Joaquin Delta: A Report Prepared for California's Fifth Climate Change Assessment

Summary

The Council will receive a presentation from the Governor's Office of Land Use and Climate Innovation (LCI) and Council staff on California's Fifth Climate Change Assessment (Fifth Assessment), including the first ever regionally specific report focused on the Delta. LCI will explain what the Fifth Assessment is and why it is important to synthesize climate change research, and Council staff will summarize the Delta report, focusing on key themes and next steps.

Background

The Fifth Assessment is a portfolio of State-sponsored work products that establish best available science on climate change across California. Four previous Assessments published in 2006, 2009, 2012, and 2018 contributed to the evolving understanding of climate change in California and set the stage for future Assessments. Legislation enacted January 1, 2021, requires LCI to develop and update the California Climate Change Assessment at least every five years. (Pub. Resources Code, § 71340 et seq.).

LCI is leading the development and distribution of the Fifth Assessment in partnership with the California Energy Commission, California Natural Resources Agency, and Strategic Growth Council, and in consultation with numerous additional public agencies, including the Delta Stewardship Council (Council). The Fifth Assessment has been a multi-year effort driven by partnerships with government, Tribes, academia, and community partners to develop new climate projections for the State based on updates to global modeling, to create original research, and to synthesize information related to climate change impacts and adaptation. The Fifth Assessment is the first time this portfolio will include a regionally specific report on the Delta. (Pub. Resources Code, § 71341, subd. (c).)

In 2021, the Council adopted the Delta Adapts Vulnerability Assessment (available here: https://deltacouncil.ca.gov/pdf/delta-plan/2021-06-25-delta-adapts-vulnerability-assessment.pdf), which summarizes existing conditions in the Delta, climate stressors and hazards, and vulnerabilities to Delta people, places, ecosystems, agriculture, recreation, and infrastructure.

In 2025, the Council adopted the Delta Adapts Adaptation Plan (available here: https://deltacouncil.ca.gov/pdf/delta-plan/2025-06-26-delta-adapts-adaptation-plan.pdf), the first of its kind for the region, which details strategies and actions the Council and its partners can take to adapt to climate change in the Delta. The Delta-focused report for the Fifth Assessment, *Climate Change in the Sacramento-San Joaquin Delta* (available here: https://climateassessment.ca.gov/2831/), includes new projections that update data reported in the Vulnerability Assessment, explains the Delta's unique climate vulnerabilities and why climate impacts to the Delta threaten both the region and the rest of the state, and summarizes what needs to be done to adapt the Delta to a changing climate, building on the Adaptation Plan.

Delta Regional Report Themes

Updated Vulnerability Assessment

The report acts as an addendum to the Delta Adapts Vulnerability Assessment by integrating new climate projections from California's Fifth Climate Change Assessment, including advanced modeling for temperature and precipitation. The report highlights projections of further warming, more frequent and severe heatwaves, and greater variability in precipitation—with both wetter and drier years becoming more common. The report also incorporates updated sea level rise guidance and research.

Statewide Implications

Climate impacts in the Delta carry statewide consequences. The region underpins water deliveries for 27 million Californians and irrigates six million acres of farmland, making the Delta's resilience inseparable from California's overall climate resilience. Projected climate conditions are expected to reduce State Water Project export capability by approximately 13% to 22% by 2043 due to extreme hydrology,

rising sea levels, and shifting precipitation patterns. Intensifying sea level rise, oxidation-driven subsidence, and more extreme storms elevate levee overtopping and failure risks that could disrupt statewide water conveyance, drive salinity intrusion, and trigger cascading impacts well beyond the Delta.

Heightened Delta Climate Vulnerability and Flood Risk

The Delta is one of California's most climate-vulnerable regions, with many places facing higher relative sea level rise than the San Francisco Bay Area and California coastline due to ongoing land subsidence and the Delta's unique position at the confluence of two major rivers. Over 150,000 acres of land in the Central Delta are deeply subsided, which greatly increases flood risk. Aging levees, built to protect these low-lying lands, are increasingly strained by rising water levels, stronger storms, and subsidence. Climate change compounds these risks with projections showing that under one foot of sea level rise and a 100-year storm, 33% of Delta land could be exposed to flooding, risking over $10 billion in assets and nearly $2 billion in economic activity.

Disproportionate Impacts

The report highlights that climate change does not affect all Delta residents equally. Socially vulnerable communities, including communities in Stockton, Antioch, Pittsburg, West Sacramento, Sacramento, Tracy, and unincorporated areas of San Joaquin County, face heightened risks from flooding, extreme heat, and poor air quality. Factors such as limited income, lack of vehicle access, limited English proficiency, and living alone make it harder for individuals to respond to emergencies or evacuate during floods. Under one foot of sea level rise and a 100-year storm, about 66,000 people (10% of the Delta's population) could be affected by flooding, with 65% of those living in socially vulnerable neighborhoods. The report emphasizes that equitable investment and community-driven planning are crucial to ensure resilience efforts reach those most at risk.

Adaptation Strategies

The report outlines a comprehensive suite of adaptation strategies for the Delta from the Council's Delta Adapts Adaptation Plan. These strategies are grouped into four focus areas: flood risk reduction, ecosystems, agriculture, and water supply reliability. Key strategies include:

- modernizing and raising levees to withstand future flood and sea level rise scenarios;
- restoring and connecting tidal marshes, managed wetlands, riparian corridors, and floodplains to buffer flood risk, improve water quality, and support biodiversity;
- incentivizing climate-smart agriculture (such as rice cultivation to halt subsidence and reduce carbon emissions); and
- expanding water conservation and storage, and improving conveyance.

Investment Needs

The report outlines Delta investment needs to prepare for a changing climate. Funding priorities include maintaining and upgrading the levee system, restoring ecosystems, and filling known climate research and data gaps. The report highlights cost estimates from Delta Adapts, which estimated that adapting the levee system to mid-century sea level rise and river inflows could cost between $3.2 and $3.3 billion, and implementing ecosystem restoration projects across 60,000 to 80,000 acres could cost between $2.5 and $5.2 billion. The report stresses that though these are substantial investments, proactive adaptation saves money in the long run, with each $1 invested avoiding roughly $13 in damages and recovery costs.

Next Steps

The report recommends advancing Delta climate resilience through several avenues and ongoing partnerships and collaboration. Many are underway, while others will be prioritized as resources allow. Some of the priority actions Council staff and partners are taking are to:

- implement the Delta Adapts Adaptation Plan, focusing on priority “adaptation accelerator” actions;
- uplift the need for sustained funding streams for habitat restoration and local infrastructure, leveraging new sources like the 2024 Climate Bond (Prop. 4, as approved by voters, Gen. Elec. (Nov. 5, 2024).);
- strengthen interagency coordination via the Delta Plan Interagency Implementation Committee (DPIIC) and the Delta Climate Adaptation Team (DCAT) (https://deltacouncil.ca.gov/pdf/information-sheets/2026-05-20-delta-

climate-adaptation-team-information-sheet.pdf), which was recently formed to support cross-sector collaboration on climate adaptation in the Delta;
- expand scientific research and data collection to address critical gaps in climate projections, infrastructure vulnerability, and ecosystem tipping points, in alignment with the Science Action Agenda priority to "assess and anticipate impacts of climate change and extreme events to support successful adaptation strategies" (https://scienceactionagenda.deltacouncil.ca.gov/pdf/2022-2026-science-action-agenda.pdf) and
- prioritize equitable engagement and investment in socially vulnerable communities to ensure adaptation benefits reach those most at risk.

Fiscal Information

Not applicable.

List of Attachments

Attachment 1 - The Delta-focused report for the Fifth Assessment, titled "Climate Change in the Sacramento-San Joaquin Delta," is available here: https://climateassessment.ca.gov/2831/

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A recording of the presentation will be available on the Delta Council's YouTube page at https://www.youtube.com/@DeltaCouncil.